Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended): A method for detecting and quantifying telomerase activity in a biological sample, the method comprising the steps of:

adding the biological sample to a reaction tube comprising:

- a first reaction mixture comprising a first primer, and nucleoside triphosphates;
- a second reaction mixture comprising a second primer and a DNA polymerase;

and

a wax layer separating the first reaction mixture from the second reaction mixture in the reaction tube;

incubating the biological sample with the first reaction mixture under conditions suitable for a telomerase to produce an extension product from the first primer, said extension product having a 3' end;

elongating the extended product at the 3' end by polyadenylation;

admixing the extension product with the second reaction mixture by melting the wax layer;

amplifying the extension product using a real-time polymerase chain reaction under conditions that allow the detection of telomerase activity from a single 293T cell; and quantifying the amplified extension product using a control template.

- 2. (Original): The method of claim 1, wherein the biological sample is added in the form of a cell or tissue extract.
- 3. (Original): The method of claim 1, wherein the real-time polymerase chain reaction is quantified by using a fluorescently labeled probe oligonucleotide that binds to a sequence between the first and the second primers.

- 4. (Original): The method of claim 1, wherein the real-time polymerase chain reaction is performed in the presence of a fluorescent dye that binds preferentially to double-stranded DNA.
- 5. (Original): The method of claim 1, wherein the second primer is a single-labeled fluorogenic primer that produces an increased amount of fluorescence emission when the fluorogenic primer is incorporated into double-stranded polymerase chain reaction product.
 - 6. (Canceled).
- 7. (Original):The method of claim 1, wherein the control template has a nucleotide sequence recited in SEQ ID NO:2.
- 8. (Currently Amended): A method for detecting and quantifying telomerase activity in a sample cell, the method comprising the steps of:

suspending the sample cell in a cell suspension;

passing the cell suspension through a needle at least once 2-5 times;

introducing into a sample cell a first primer and nucleoside triphosphates;

incubating the sample cell under conditions suitable for a telomerase to produce an extension product from the first primer;

elongating the extended product at the 3' end by polyadenylation; amplifying the _extension productusing real-time polymerase chain reaction; and quantifying the amplified extension product using a control template.

- 9. (Original): The method of claim 8, further comprising: lysing the sample cell with a lysis buffer.
- 10. (Original): The method of claim 8, wherein the first primer and nucleoside triphosphates are introduced into the sample cell by calcium phosphate precipitation.
 - 11. (Canceled)

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- 12. (Original): The method of claim 8, wherein the real-time polymerase chain reaction is performed in the presence of a fluorescent dye that binds preferentially to double-stranded DNA.
- 13. (Original): The method of claim 8, wherein the real-time polymerase chain reaction is performed in the presence of a second primer, and wherein the second primer is a fluorogenic primer that produces an increased amount of fluorescence emission when the fluorogenic primer is incorporated into double-stranded polymerase chain reaction product.
- 14. (Original): The method of claim 8, wherein the control template has a nucleotide sequence recited in SEQ ID NO:2.
- 15. (Currently Amended): A method for detecting and quantifying telomerase activity in a biological sample, the method comprising the steps of:

adding the biological sample to a reaction tube comprising:

- a first reaction mixture comprising a first primer and nucleoside triphosphates;
- a second reaction mixture comprising a second primer and a DNA polymerase;

and

a wax layer separating the first reaction mixture from the second reaction mixture in the reaction tube;

incubating the biological sample with the first reaction mixture under conditions suitable for a telomerase to produce an extension product from the first primer, said extension product; elongating the extended product at a 3' end by one of polyadenylation and ligation; admixing the extension product with the second reaction mixture by melting the wax

layer;

amplifying the extension product using a real-time polymerase chain reaction under conditions that allow the detection of telomerase activity from a single 293T cell; and

quantifying the amplified extension product using a control template, wherein the second primer comprises a nucleotide sequence that is complementary to the nucleotide sequence at a 3' end of the elongated extension product.

16-19. (Canceled)

20. (Previously Presented): A method for monitoring the effectiveness of treatment of a subject with an agent that inhibits telomerase activity, said method comprising:

obtaining a pre-administration sample from the subject prior to administration of the agent;

detecting a level of telomerase activity in the pre-administration sample using the method of claim 1;

obtaining one or more post-administration samples from the subject;

detecting the level of telomerase activity in the post-administration samples using the method of claim 1; and

comparing the level of telomerase activity in the pre-administration sample with the level of telomerase activity in the post-administration sample or samples.